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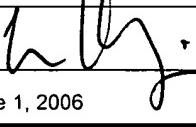
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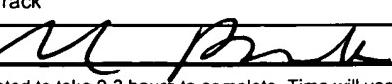
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TRANSMITTAL FORM <small>(to be used for correspondence after initial filing)</small>		Application Number:	10/663,190
JUN 01 2006		Filing Date	September 15, 2003
		First Named Inventor	Kenichi Ohkubo
		Group Art Unit	1714
		Examiner Name	Callie E. Shosho
Total Number of Pages in This Submission (excluding references)	6	Attorney Docket Number	56232.95

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Deposit Account 07-1850 Authorization <input checked="" type="checkbox"/> Postage Paid Return Postcard <input type="checkbox"/> Response to Office Action (pages) <input type="checkbox"/> Statement of Common Ownership (1 page) <input checked="" type="checkbox"/> Declaration(s)/Affidavit(s) <input checked="" type="checkbox"/> Declaration Under 37 CFR §1.132 (5 pages) <input type="checkbox"/> Petition for Extension of Time (months) (in duplicate) <input checked="" type="checkbox"/> Express Mail Label No. EV 765 049 109 US <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) In/Formal ___ Sheets with Submission of Drawings Transmittal <input type="checkbox"/> Issue Fee Transmittal with PTO-85b (in duplicate) <input type="checkbox"/> Amendment Transmittal Letter (page) (in duplicate) <input type="checkbox"/> Fee Transmittal Form (in duplicate) <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) ___	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Request for Status of Application <input type="checkbox"/> Other Enclosure(s) (please identify below):
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Squire, Sanders & Dempsey L.L.P. Cameron K. Kerrigan, Reg. no. 44,826
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Date	June 1, 2006

CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.	
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Attorney Docket No.: 56232.95

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of:

Kenichi Ohkubo et al.

Serial No: 10/663,190

Filed: September 15, 2003

For: Colored Minute Particles Dispersion,
Aqueous Ink, And Image Forming
Method Using the Same

Examiner: Callie E. Shosho

Art Unit: 1714

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DECLARATION UNDER 37 CFR § 1.132

I, Mr. Kenichi Ohkubo, declare as follows:

1. I graduated from the post graduate course of Tsukuba University with a Master's degree in chemistry in March 1998. I entered Konica Corporation in April 1998 and since then have been engaged in research and development of ink jet ink.
2. I have read the office action dated January 12, 2006 and the references cited therein.
3. The experiment outlined in paragraph 4 was conducted under my control and supervision. Sakai's (U.S. 2003/0050362) Example 1 appears to be closest to the current invention since it has the smallest average diameter through Examples 1-5 (see Table 1), but is different on two points, one is pigment and the other is particle diameter of the colorant dispersion.

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4. Experiment

Example 1 of Sakai is representative and closest to the present invention since it has smallest average diameter through Examples 1-5 (see Table 1). This Example is repeated except that the pigment is replaced oil-soluble dye by Experiment. Sakai uses 4 parts of a processed pigment "Microlith Blue 4G-KP" composed of Phthalocyanine Blue, concentration of 50%, and vinyl chloride/vinyl acetate copolymer resin in his Example 1. In modification experiments, 2 parts of oil-soluble dye FS Blue 1504 and 2 parts of vinyl chloride/vinyl acetate copolymer resin VYMH were used in place of "Microlith Blue 4G-KP". The applicants could not know which vinyl chloride/vinyl acetate copolymer resin is used in "Microlith Blue 4G-KP", and VYMH, used in Sakai's Example 5, was used. This is believed to be reasonable selection. One example was prepared to have an average particle diameter of 135 nm, and the other 48 nm. The latter has the peak particle diameter of 48 nm.

Sakai's Example 1: (Comparative Sample)

This is a Replica of Sakai's Example 1.

Four parts of a processed pigment "Microlith Blue 4G-KP" (product of Ciba Specialty Chemicals Co., Ltd) were added to a mixture of 4 parts of methyl methacrylate and 6 parts of n-butyl acrylate, and the mixture was stirred by a stirrer to disperse the pigment. The average particle diameter of the pigment dispersed in the monomer mixture was 135 nm. Then 2 parts of a reactive emulsifier Aqualon HS-20 (product of Dai-ich Kogyo Seiyaku Co., Ltd.) and 0.36 parts of 1,1-azobisisobutyronitrile as an initiator were mixed. Water was added to the resultant mixture to conduct emulsification by means of a homogenizer. Water was additionally added to the resulted emulsion to adjust the proportion of other component than water so as to reach 40%. Thus adjusted mixture was charged into a polymerization vessel equipped with a stirrer, a reflux condenser and a nitrogen gas inlet tube and heated to 75°C under nitrogen atmosphere to conduct polymerization for 24 hours. A colored fine resin dispersion Sakai's Example 1 was obtained. The peak particle diameter of the dispersion was 135 nm.

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Sample S1: (Comparative Sample)

This sample is a modification of Example 1 of Sakai, employing oil soluble dye and a polymer in place of processcd pigment "Microlith Blue 4G-KP".

Two parts of oil-soluble dye FS Blue 1504 (product of Arimoto Chemical Co.. Ltd.) and 2 parts of a vinyl chloride/vinyl acetate copolymer resin VYMH (product of Union Carbide Corp.) were added to a mixture of 4 parts of methyl methacrylate and 6 parts of n-butyl acrylate, and the mixture was stirred by a stirrer. The dye was dissolved to have homogeneous dye solution. Then 2 parts of a reactive emulsifier Aqualon HS-20 (product of Dai-ich Kogyo Seiyaku Co., Ltd.) and 0.36 parts of 1,1-azobisisobutyronitrile as an initiator were mixed. Water was added to the resultant mixture to conduct emulsification by means of a homogenizer. Water was additionally added to the resulted emulsion to adjust the proportion of other component than water so as to reach 40%, and an average particle size of 135 nm. Thus adjusted mixture was charged into a polymerization vessel equipped with a stirrer, a reflux condenser and a nitrogen gas inlet tube and heated to 75°C under nitrogen atmosphere to conduct polymerization for 24 hours and Aqueous Dispersion S1 was obtained. The peak particle diameter of the dispersion was 135 nm.

Sample S2: Inventive Sample

This sample is a modification of Sample S1, wherein dispersion process was modified from S1 so as to obtain finer peak particle diameter than S1.

Two parts of oil-soluble dye FS Blue 1504 (product of Arimoto Chemical Co., Ltd.) and 2 parts of a vinyl chloride/vinyl acetate copolymer resin VYMH (product of Union Carbide Corp.) were added to a mixture of 4 parts of methyl methacrylate and 6 parts of n-butyl acrylate, and the mixture was stirred by a stirrer. The dye was dissolved to have homogeneous dye solution. Then 2 parts of a reactive emulsifier Aqualon HS-20 (product of Dai-ich Kogyo Seiyaku Co., Ltd.) was added and emulsified. Water was added to the resultant mixture to conduct emulsification by means of NANOMOZER (product of YOSHIDA KIKAI CO., LTD.). Water was additionally added to the resulted

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emulsion to adjust the proportion of other component than water so as to reach 40%, and emulsification was continued so that the dispersion have an average particle size of 48 nm.

Thus obtained dispersion were charged into a polymerization vessel equipped with a stirrer, a reflux condenser and a nitrogen gas inlet tube and heated to 75°C under nitrogen atmosphere to conduct polymerization by adding 0.36 parts of 1,1-azobisisobutyronitrile as an initiator gradually for 24 hours and Aqueous Dispersion S2 was obtained. The peak particle diameter of the dispersion was 48 nm.

Ink samples were prepared employing these dispersions Sakai's Example 1, S1 and S2 in the same manner of Preparation of Ink I-1 as disclosed at page 60 of the present application. Test was conducted on the "Storage Stability of Inks," "Ejection Stability" and "Resumption of Ejection after cleaning" and evaluated as disclosed at pages 61-63 of the present application. The measuring method of peak particle diameter is also described at page 61. The result is summarized in the Table.

Sample	Peak particle diameter	Storage Stability	Ejection Stability	Resumption of Ejection after cleaning
Sakai's Example 1	135 nm	650%	D	D
S1	135 nm	305%	D	D
S2	48 nm	260%	B	B

The experiment result demonstrates the colored particle having a peak particle diameter as claimed is advantageous in all of evaluation items of Storage Stability of Inks, Ejection Stability and Resumption of Ejection after cleaning.

5. I further declare that all statements made herein of my own knowledge are true and that all statements made upon information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title

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18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Executed on:

May 25, 2006

By:

Kenichi Ohkubo

Kenichi Ohkubo